



Early Journal Content on JSTOR, Free to Anyone in the World

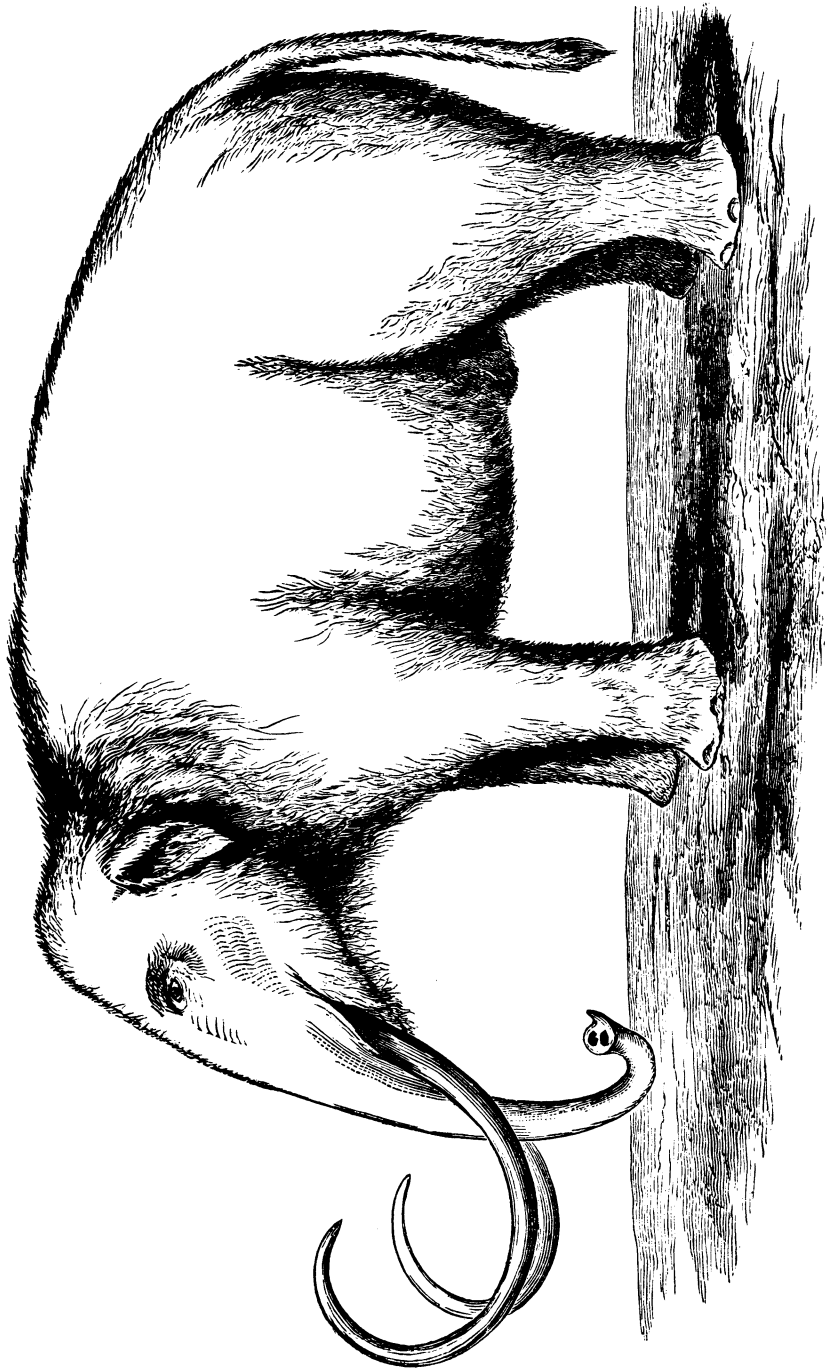
This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.



THE HAIRY MAMMOTH.

and Acadian faunæ, on the deep water-banks off the New England coast, are thus shown to be relics of the northward migration of these faunæ.—*To be concluded.*

THE HAIRY MAMMOTH.

BY A. S. PACKARD, JR., M. D.

IN 1799, Schumachoff, a Tungusian hunter, discovered at the mouth of the river Lena a shapeless mass frozen in the ice. But not until two years after, 1801, when the ice had so melted that the tusks and one side of the animal were disclosed, did he know upon what a monster he had stumbled. Returning to his home on the borders of Lake On-coul, he told his family of the strange creature entombed in the ice. They were seized with consternation, for in the days of yore some hunter had found on this peninsula the same sort of animal, and his family had all died soon afterwards.

Death, however, did not invade the household. The god of mammon reigned instead. On recovering from the nearly fatal sickness into which his superstitious fears had thrown him, our enterprising ivory-hunter, led on by the greed of gain, revisited the Mammoth Golgotha, and in March, 1804, favored by the warm weather, beheld the gigantic carcass, now become historic, reposing free from its icy tomb on the sands of the Lena. He sold the tusks for fifty roubles, and the carcass was left to the tender mercies of the people about, who fed their dogs on the flesh, while "wild beasts, such as white bears, wolves, wolverenes, and foxes also fed upon it, and the traces of their footsteps were seen around." The skeleton remained entire, except one foreleg, which some unusually enterprising white bear probably lugged off. Professor R. Owen, whose account we have been using, states that,—

“According to the assertion of the Tungusian discoverer, the animal was so fat, that its belly hung down below the joints of the knees. This mammoth was a male, with a long mane on the neck; the tail was much mutilated, only eight out of twenty-eight caudal vertebræ remaining; the proboscis was gone, but the places of the insertion of its muscles were visible on the skull. The skin, of which about three-fourths were saved, was of a dark gray color, covered with a reddish wool, and coarse long black hairs. The dampness of the spot where the animal had lain so long had in some degree destroyed the hair. The entire skeleton, from the fore part of the skull to the end of the mutilated tail, measured sixteen feet four inches; its height was nine feet four inches. The tusks measured along the curve nine feet six inches, and in a straight line from the base to the point three feet seven inches.

“Mr. Adams collected the bones, and had the satisfaction to find the other scapula, which had remained, not far off. He next detached the skin on the side on which the animal had lain, which was well preserved; the weight of the skin was such that ten persons found great difficulty in transporting it to the shore. After this, the ground was dug in different places to ascertain whether any of its bones were buried, but principally to collect all the hairs which the white bears had trod into the ground while devouring the flesh, and more than thirty-six pounds’ weight of hair was thus recovered. The tusks were purchased at Jatusk, and the whole expedited thence to St. Petersburg; the skeleton is now mounted in the museum of the Petropolitan Academy.”*

The Mammoth (*Elephas primigenius* Blum.), did not dwell alone in Siberia. A hairy Rhinoceros (*Rhinoceros tichorhinus*), which had a length of eleven and one-half feet, was found frozen in Siberia near Wilui in 1777. It ranged from England and Middle Europe to Siberia. Like the living species of elephants, the Mammoth not only browsed on the leaves of the spruce and fir, but ground beneath the broad surfaces of its immense grinders boughs of considerable thickness. It has been objected, despite its hairy coat, fitting it for the rigors of a Siberian winter, that the Mammoth could not have been indigenous to the shores of the Arctic Ocean, since the vegetation was so scanty; but Professor Owen sets aside such objections, observing that “forests of hardy trees and shrubs still grow upon the frozen soil of Siberia, and skirt the banks of the Lena, as far north as latitude 60°. In Europe, arboreal veg-

* Owen’s British Fossil Mammals and Birds.

etation extends ten degrees nearer the pole, and the dental organization of the Mammoth proves that it might have derived subsistence from the leafless branches of trees, in regions covered during a great part of the year with snow."

We may, with this learned author, assign the northern limit of trees, which even at some points reaches the seventieth parallel of latitude, as the bounds to the wanderings northward of the Siberian Mammoth. A few years previous (1796), Cuvier announced that the bones of elephants found scattered through the Quarternary deposits, or Post-tertiary sands and clays, and the upper Tertiary deposits, belonged to a distinct, as well as extinct species. This fact suggested to him the idea of the existence of former worlds and successive creations of species, and from this moment the science of Palæontology took its place in the sisterhood of sciences. The bones of the Mammoth and the mastodon, the rhinoceros and hippopotamus were shown to belong to extinct species which formerly roamed over the surface of Southern and Middle Europe, and not, as his opponents contended, of luckless inmates of Roman menageries, or less likely, as others alleged, of heathen giants sixty feet high, who lived in the age of fable.

Organized research, led by the great French Palæontologist, established the fact that the Mammoth was indeed once an abundant animal in Europe. This huge elephant, with its cousin, the mastodon (*Mastodon angustidens*), a still larger genus of elephants, differing in the structure of the teeth, was common in Middle and Southern Europe; the species of both genera, like the elephants of the present day, enjoying a wide geographical range. The Mammoth ranged from the fortieth to the sixtieth parallel of latitude.

Lartet, one of the founders of a new science, *Anthropology*, has brought forward additional proof of the former existence in Middle Europe of the Siberian Mammoth, and that from the most startling sources.

In May, 1864, this French geologist, with his countryman

Vernueil and an English naturalist, Dr. Falconer, visited the caves of Perigord in the department of Dordogne, France, and discovered, in the soil and debris in the bottom of these caves, various sketches of animals carved on pieces of deer's horns and elephant's ivory.

We copy from an account of the discoveries made by Lartet and Christy (prepared by the great Danish naturalist and archæologist, Professor J. Steenstrup, for a Danish Natural History Journal, published at Copenhagen),* drawings that rival in interest the Rosetta Stone, specimens of Egyptian and Assyrian sculpture, or the remains of Aztec art. Fig. 1

Fig. 1.

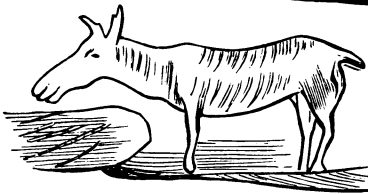
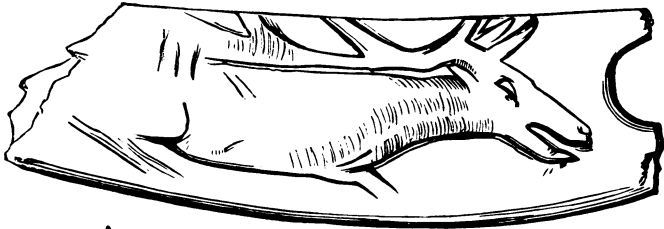


Fig. 2.



Fig. 3.

represents a species of deer, probably the reindeer; Fig. 2 an elk, allied to our moose; and Fig. 3 unmistakably pictures the head of the wild boar. The reader may puzzle over Fig. 4, but let him compare it carefully with the restoration of the Hairy Mammoth (*Elephas primigenius* Blumenbach, Plate 1),† which has been recently published by the Russian naturalist Brandt, from which our drawing is a little re-

* Tidsskrift for populaere fremstillinger af Naturvidenskaben, Udgivet af C. Fogh og C. F. Lütken. 3d ser., Vol. IV, Kjöbenhavn. See also our account of these discoveries, Vol. I, p. 274, taken from the Quarterly Journal of Science, London.

† Figure of a Hairy Mammoth engraved on a piece of elephant's ivory, found in the Madelaine Cave in the department of Dordogne, France. Taken from a photoxyl-

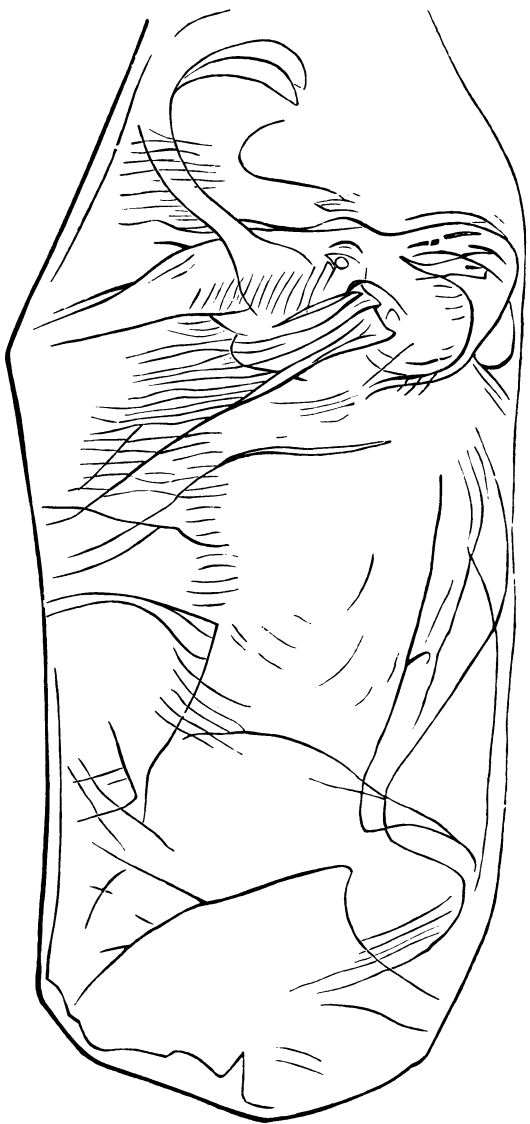


Fig. 4.

Figure of a Hairy Mammoth engraved on a piece of elephant's ivory, found in the Mentelaine cave.

duced, and lo, an off-hand sketch of his trophy of the chase by some prehistoric Cummings or Baker!

As specimens of earliest art they are certainly creditable, and almost rank with drawing of animals represented in Assyrian, Egyptian, or Aztec art, at least surpassing the hieroglyphics of the North American Indians. The peculiar shape of the head of the Siberian Mammoth, with its characteristic up-curved enormous tusks, and trunk hanging down at ease, and the hairy mane, which no living species of elephant possesses, evince a quick eye, excellent perceptive powers, and an artistic touch given by the prehistoric artist, which certainly discovers the germs of dawning art in the Cave-dwellers of France.

From portions of several skulls and a single lower jaw of man found in the caves and gravel-beds of Europe, anatomists of high authority have, we cannot but think too hastily, referred their possessors to the most degraded of savage races.*

The bas-reliefs and inlaid sketches of our cave-dwellers, rather ally them, from the evidence of their art-remains, as a very high authority, Professor Steenstrup suggests, to the tribes of Eastern Asia. He states that Chamisso, the Italian

graphic copy, published in the Danish Popular Journal of Natural History, reduced one half, from Lartet's original drawing.

About the same time the Marquis Vibraye discovered, on the banks of the Vésère in Dordogne, another engraving of the Mammoth made in a slab of slate. In speaking of the accuracy of the sketches he says, "The artists of the Augerie have made no caricatures, and dealt little in the fanciful. If the rough sketches of art in its first steps seem to us rude, the truthfulness of the general forms are shown to be at least scrupulously respected. I will cite as an example a slab of slate on which there is reproduced with a few strokes a combat of the reindeers. The victor is represented in an attitude the truthfulness of which is surprising. It is the same with an engraving of the head of the reindeer obtained also in one of the stations of the Augerie. In view of such facts it seems to be inadmissible to suppose, that, in making a purely fanciful drawing of a head, an aboriginal should have precisely reproduced that of an elephant, by the side of which we have constantly found the remains in the same conditions of burial; and that blind chance had been a sufficient guide for him to give in his sketch all the characters of a proboscidian of whose existence he was ignorant."—*Annales des Sciences Naturelles*, 5e ser. T. 4, p. 361. 1865.

* Maligned as these primitive folk have been by certain savants and popular-science writers, the unkindest blow of all has been dealt by the Rev. D. I. Heath in the *London Anthropological Review*, April, 1867. Readily accepting the supposed ape-like form of this race, he gravely propounds the theory that the "Kitchen-middeners" were *mutes*,

traveller, describes in his "Voyages," the expertness of some tribes of North-eastern Asia, in drawing figures of animals on walrus tusks and the teeth of the sperm-whale.

In an evident zeal to make these people a connecting link between man and the apes, have not some writers exaggerated, on rather slight data, the degraded and savage character of these primitive folk?

Have not geologists also exaggerated the geological age of the Stone period, carrying it too far back, and also not bringing it near enough to historic times? In the first flush of the interest excited by these startling developments, they also have demanded too great a cold for the climate of Middle Europe. Associated with these Mammoth bones and drawings were sketches of an animal like the Irish elk, which historical evidence tends to show existed up to the fourteenth century; of the reindeer, which Cæsar refers to in his Commentaries, which Boyd Dawkings thinks must have lived in Northern Scotland as late as the twelfth century, and which remained in Denmark up to the sixteenth century; of the bison, which still survives in Lithuania, the urus, aurochs, or *Bos primigenius*, which is said to have lingered in

who were taught to speak by men of the Aryan race who shared the land with them, or, as the December number of Blackwood has it,—

"Anthropologists say, after man had his birth,
There were two human races possessing the earth;
One gifted and graced with articulate speech,
And another that only could gabble and screech.

The Aryans could speak, and could build, and could plough,
And knew most of the arts we are practising now;
But the Dummies that dwelt in those vile Kitchen-middens,
Weren't fit but to do their superior's biddings.

So an Aryan went forth to enlighten these others,
And to raise them by speech to the level of brothers;
On the Mutes of the Middens he burst with eclat,
And attempted to teach them the syllable PA."

The rather infantile science of the Anthropological Review, put into easy verse, does not state whether Aryan implements and relics have been found in the Kjækenmæddings. But thus far has any evidence of an intermixture of two races, one so much higher than the other, been found in Denmark during the Stone Age? We shall wait patiently for a few pertinent facts; meanwhile, in these days of equal rights, advocating Kjækenmædding suffrage; believing that they were born with all their senses and faculties such as they were, and stood on the same level with their Finnish and Lapland allies or representatives of later times.

Switzerland up to the sixteenth century, and the wild boar, still abundant in Central Europe.

The Mammoth, then, was hunted in middle Europe by a hardy race of men (the Reindeer Folk), savage, it is true, but who wielded the spear, and shot flint-headed arrows at the enormous beasts they hunted; and, resting from the fatigues of the hunt, engraved on ivory* the animals slain by them with a sort of hard-pointed style; whose wives probably made garments of skins sewed with delicate bone needles, and whose families seemed to have been well housed

*“In the working of bones, especially the antlers of the reindeer, these Reindeer men seem to have excelled. Lance and arrow-heads with barbs, knives, and daggers, all kinds of flat and curved shapes apt for scraping the skins and similar objects, awls and needles of considerable fineness, with eyes fit for the passage of a thread; handles are found in quantity, and some unfinished specimens show the troublesome mode by which these implements were brought to a finished condition.

“The art products of the Reindeer people who inhabited France are of particular interest. The decorations on many pots and implements, consisting of simple, straight, angular, or crossed lines, exhibit a certain sense for beauty; but the drawings of animals, as discovered by MM. Lartet and Garrigou, are still more surprising. They are mostly found engraved on bones, but also on slate. Those found by M. Garrigou represent heads and tails of fishes; those in possession of M. Lartet represent large mammals, among which the reindeer is easily recognized by the antlers. Most of these drawings occupy, certainly, merely that rank in art as a schoolboy's attempts on the wall, in order, as a little nephew of mine observed, to derive pleasure from its contemplation. Many of these drawings only furnish us with the idea of horned ruminants in general, leaving to our choice to detect the difference between oxen, sheep, and goats; others, however, are sufficiently characteristic to enable us to recognize the animal at once, although the proportions are somewhat faulty. The masterpiece in Lartet's collection is a handle carved from the antlers of a reindeer, a real sculptured work, the body of the animal being so turned and twisted, that it forms a handle for a boy's hand. All other drawings are in sharp and firm outlines, graved upon the surface of the bone, and it may be seen that the artist, in working it, turned the bone in various directions, some of the lines showing a flat inside turned surface. Many of these drawings are known to the public by the treatises of Lartet and Christy on the caves of Perigord; but I can, from my own inspection, assert that there exist in that collection many others, and these highly characteristic. Thus I recently saw in my friend Desor's collection two plaster casts of pieces found in a heap of bones of the Reindeer period, at Madelaine, near Tursac (Dordogne). It is a kind of kitchen-midden at the foot of a rock, about fifteen mètres long, seven mètres broad, and two and a half mètres thick. In the middle some human remains were found. One of these pieces is a broken-off femur of a swan. The animal carved upon it has a short thick tail, a long straight back and belly, the head and the lower parts of the feet are wanting; a zig-zag line along the back, imitating somewhat rudely the aspect of the reindeer in summer, when the long winter-hair still hangs in flocks about the back, whilst the belly shows already the short dark summer hair. Some short lines before the forefeet may represent the hair of the throat. The second is a fragment either of a femur or a tibia. It represents two reindeers following each other (?), the one being known by its indication of antlers. Further explorations will, no doubt, increase our treasury of art products of the reindeer period.”—(VOGT.)

in caves and rock-shelters and rude huts, at a period long before the first dawns of history.

So far from being lower than Australians and Hottentots, they may have been the ancestors of the Calmucs and Fins and Lapps. Living near glaciers which descended into the plains of France down the slopes of the Alps and Pyrenees, which brought Alpine and ice-inhabiting animals close to their hunting-grounds, they yet chased the boar through the forests, the elk through the morasses and grassy intervals, and pursued the musk-ox, the roe, the chamois, ibex, Pyrenæan deer, and, most abundant of all, the reindeer, over the snow-fields lying on the hills and uplands; and in the lower plains and valleys watched by night, made hideous by the cries of the cave-hyena, for the Mammoth and mastodon, the cave-bear, the lion, tiger, and tichorhine rhinoceros, as they came from their retreats to slake their thirst at the river bank.

Professor Carl Vogt, in "The Primitive Period of the Human Species," translated for the Anthropological Review, has given the most recent and more moderate views regarding the Stone Folk. With Lartet and Christy he divides the Stone Age into two periods: first, the "*Cave-bear epoch*," distinguished by large, now extinct, species of beasts of prey and pachydermata, rude flint implements, coarsely worked bones, and long cranial forms of a strong race of men;* and second, the "*Reindeer period*," characterized by the

*"In endeavoring, from the discoveries hitherto made, to form conclusions respecting the civilization of this long-headed (inferring from the Neander skull), powerful, tall, and strong primitive man, who lived by the side of the cave-bear and the mammoth, we perceive that already then he honoured his dead by burying them, probably in a crouching position, in grottoes closed with slabs; and that he furnished them with meat and arms for their journey into another world. He knew the use of fire, and constructed hearths, where he roasted his meat; for of pottery the traces are but few. He broke the long bones of the larger animals in a systematic manner, in order to extract the marrow; and also the skull, to obtain the brain. His implements or weapons consist of rude hatchets and knives, which were struck off from a flint block by another stone; and of worked bones, employed for handles, arrows, clubs, or awls. Such pieces as look like pike or arrow-heads never show any grapple-hooks, but smooth sides. This wild primitive man, the wildness of which is indicated by his terrible superciliary arches, nevertheless endeavored to ornament his person with perforated pieces

northern fauna of a cold climate, by hammered stone weapons, carved and artfully decorated bones, and the short skulls of a small and more delicately constructed, but, at all events, a very intelligent art-endowed race of men."

But is it not possible that the two races lived contemporaneously? The Reindeer Folk may have inhabited the upper valleys and hills near the Alps and Pyrenees, which send spurs into Southern and Central France. They were, perhaps, mountaineers, and the animals associated with them, and most characteristic of the period, were alpine and northern species. Like the Lapps and Fins, the men were dwarfed, and more delicate, and perhaps more active-minded and ingenious than the Flint Folk. So far from dwelling exclusively in caves, they may have lived in skin lodges in summer, and in wooden or snow huts in winter.

Their neighbors, the Flint Folk, or Lowlanders, a taller and stronger race, meantime inhabited the plains of Northern France and Belgium, England and Germany, and the fauna was made up of the Mammoth, mastodon, and rhinoceros, horse, cave-bear (which was much more abundant than with the Reindeer people), bison, aurochs, and deer, which inhabited the more genial and fertile plains.

Taking this view, the supposed great length of the Stone Age is much reduced; it explains how two such dissimilar races lived side by side, just as the Lapps and Fins lived twenty centuries since, not far from the Celts and Tartars, on the mountainous parts of Europe and the borders of Asia; and while the climate was colder on the highlands, on the plains of Middle Europe it was, probably, much as described by Tacitus and Cæsar.

of coral and the teeth of wild animals. He probably dressed in skins or prepared bark of trees; for the awls and needles found may have been serviceable for patching together such materials, but not for weaved stuff. We possess no direct information respecting his food, besides that he procured from the chase. The great number of flint instruments found in the caves, since attention has been drawn to this subject, lead us to infer that this man had spread over the whole of Central Europe this side of the Alps; whether in a single or various types, will only be decided when we are in possession of a greater number of skulls."

In our own land the Mammoth was associated with the *Mastodon giganteus*. Herds of the Siberian Mammoth found their way across Behring's Straits into Alaska, as their remains occur in the greatest abundance at Eschscholtz Bay. The explorations of Mr. W. H. Dall show how common it must have been to the southward in the Yukon Valley. It seems to have extended southward in America as far as the parallel of 40°, as remains, found at several localities in Canada, have been referred to this species.

Professor Leidy has claimed, on partial evidence (a complete skull not having yet been found), the existence of a truly American species of elephant (*Elephas Americana*), representing in the new world the European and arctic Hairy Mammoth. This species replaced, in the warmer parts of our country, the Siberian elephant. Its remains, like those of the mastodon, are found at the bottom of swamps and in the upper strata of river sands. It should be borne in mind by the reader, that these deposits of river alluvium are the most recent of the deposits of the post-tertiary age. They should not be confounded, as they often are, with the true glacial or drift deposits, which were thrown down at an immensely earlier period, so far as known facts teach us. In the Northern States, at least, we had the following succession of events antedating the appearance of the American elephants,* including the mastodon, though this does not preclude their existence southwards, where the climate was hotter. The warm climate of the latest Tertiary (Pliocene), in which the temperature of New England and the Northern States may have been like that of the Gulf States at the present day, gave way to the arctic cold that brought with it the snows and glaciers of the true Glacial epoch, the period which separates the Tertiary from the Quarternary

* "The American elephant ranged from Georgia, Texas, and Mexico on the south, to Canada on the north, and to Oregon and California on the west. . . . The species appears to have been most abundant to the south, in the Mississippi Valley, it preferring a warmer climate than *Elephas primigenius*."—(DANA.)

periods. For ages the Ice King held sway over this immense territory. The walrus, and perhaps the musk-ox, the white bear and arctic fox occupied the land that had perhaps shook beneath the tread of the Megatherium and Boottherium, the American lion and the mastodon and elephant; and the creeping willow and procumbent birch and lowly cranberry, the snow white *Arenaria greenlandica*, and other arctic plants succeeded the gaudy flowers and luxuriant forests of the latest Tertiary soil.

Centuries after, the continent slowly sinks, perhaps six hundred feet; the sea laves the foot of the White Mountains; the temperature is raised and the glaciers have retreated to the Alpine valleys. This is the period of the *Leda clays*, in which bones of the bison and walrus are found. But not until a later and still warmer period, that of the rearrangement of these sands and clays into lake shores and fertile river intervals, does the Mammoth (so far as fossil evidence goes) seem to have flourished abundantly.

The remains of the mastodon, found lately in Indiana and stored in the museum of the Chicago Academy of Science, occurred in a peat-swamp four feet beneath the surface, over a bed of marl containing fresh-water shells. This willow swamp had been flowed by the beaver, as its dam and evidences of its lakes were still remaining. Indeed, there are accounts, which however need confirmation, of mastodons' bones being found in the Western States, associated with arrow-heads and other Indian relics, as if the creature had been mired in some "lick," and killed by Indians. We shall eagerly look for fresh discoveries in this direction by our Western naturalists. The mastodon seems to have been more abundant in the Middle States than the Mammoth. The habits and geographical range of the two animals, however, seem to have been very much the same. The true home of the earth-shakers was the Sivalik Hills at the foot of the Himalayah Mountains, seven fossil species of elephants, and three of mastodons having been found there, besides the

living species of elephant. A species of mastodon inhabited the Pampas of Brazil, the bones having been found in the bone-caves near Rio, and the *Mastodon Humboldtii* lived in the Andes. The *Mastodon giganteus* lived on the spruce and fir trees. The food of the tropical existing species is well known to consist of the leaves and succulent branches of trees.

It must seem strange to many of our readers to have had introduced, as a characteristic feature in our landscapes of prehistoric times, herds of wild elephants much exceeding in size the tamed imported specimens that march servilely through our towns and villages. How would the children of to-day grin and wonder with patriotic glee should a squad of veritable *American* elephants stalk through the gaping throng! Such fortune fell only to the lot of the prehistoric urchin. What glorious times were those when the children of the Mound-builders perhaps trooped on gala days of antediluvian rejoicing, to see trained lions and learned horses exhibit in the circus of those days (if the Preadamites were circus-goers); saw the megatherium fed, the hunger of the megalonyx and mylodon appeased with small forests of saplings, and—crowning delight of all—rode on the backs of docile Mammoths and more than elephantine mastodons!*

* These animals may possibly have been in America contemporaries of the earliest races of men, as some of the species or allied forms are now proved to have been in Europe.

Professor J. Marcou states that human bones have been found either *in* the bonebeds of the Natchez quarternary deposits, or in strata lying *over* them. Regarding the question whether man was really contemporaneous with the Mammoth and the quarternary mammals, Professor Dana states that "in North America there are no known acts sufficiently well authenticated to be here repeated."

Professor Dana, in his Manual of Geology, cites, among the characteristic mammals of this period in North America, the great beaver (*Castoroides Ohioënsis*), the *Bison latifrons* Leidy, a species much larger than the existing buffalo, and a genus of ox (*Bootherium*) related to the musk-ox. A species of stag (*Cervus Americanus* Leidy), larger than the great Irish Elk, and the American Post-tertiary lion (*Felis atrox* Leidy), about as large as the fossil lion of Britain. Other gigantic mammals, such as the *Megalonyx* and *Megatherium* and *Mylodon*, inhabited the Mississippi Valley, as their bones are found associated in the famous Natchez bone-locality with remains of the horse, bear, elephant, and mastodon, now known to have been a resident of North and South America long before Columbus made his voyages.